

INTERNATIONAL SYMPOSIUM "DYNAMICS OF FLUIDS IN FRACTURED ROCKS: CONCEPTS AND RECENT ADVANCES"

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An International Symposium on the Dynamics of Fluids in Fractured Rocks: Concepts and Recent Advances was held at Berkeley Lab Feb. 10–12, 1999. This symposium celebrated the 80th birthday of retired researcher and professor Paul A. Witherspoon, who initiated some of the early investigations

on flow and transport in fractured rocks at UC Berkeley and Berkeley Lab. He has played a key role at these institutions in the development of research on basic concepts, modeling and investigations in the laboratory and field on fluid flow and contaminant transport in fractured rock systems. The aim of the symposium was to bring together an international group of scientists and engineers from different earth sciences fields to discuss these problems and exchange ideas on new approaches for research on fractured rocks.



Paul A. Witherspoon

The technical problems of assessing fluid flow, radionuclide transport, site characterization, modeling and performance assessment in fractured rocks remain the most challenging aspects of subsurface flow and transport investigations. An understanding of these important aspects of hydrogeology is needed to assess disposal of nuclear wastes, development of geothermal resources, production of oil and gas resources and remediation of contaminated sites.

More than 100 papers from 12 countries were presented at the symposium to address recent scientific and practical developments and the status of our understanding of fluid flow and radionuclide transport in fractured rocks. More than 200 people participated, providing valuable information on different aspects of investigation of fractured rocks, including:

- Theoretical studies of fluid flow in fractured rocks
- Multi-phase flow and reactive chemical transport in fractured rocks
- Fracture/matrix interactions
- Hydrogeological and transport testing
- Fracture flow models
- Vadose zone studies
- Isotopic studies of flow in fractured systems
- Fractures in geothermal systems
- Remediation and colloid transport in fractured systems
- Nuclear waste disposal in fractured rocks

The symposium proceedings, published by LBNL and containing more than 100 extended abstracts, and the monograph "Dynamics of fluids in fractured rocks: concepts and recent advances," containing 26 papers selected from those presented at the symposium (to be published by AGU in Fall 2000) will be used by many governmental agencies, universities, research organizations and private companies in solving a variety of fundamental scientific and practical problems in the earth sciences.

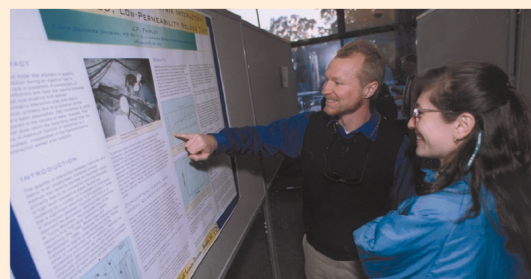


Figure 1. The symposium attracted more than 200 participants.

ACKNOWLEDGEMENTS

We would like to thank Paul Witherspoon for the many decades of insight, enthusiasm, friendship, and encouragement—and for giving us this wonderful occasion to grapple with the challenge of understanding the dynamics of flow in fractured rocks in the company of so many fine scientists. Support for the symposium and the monograph was provided by the U.S. Department of Energy (Oakland Operations Office, Office of Environmental Management, Office of Science and Technology, Subsurface Contaminants Focus Area, Office of Civilian Radioactive Waste Management), LBNL, Idaho National Engineering and Environmental Laboratory, U.S. Nuclear Regulatory Commission, U.S. Geological Survey and American Institute of Hydrology. The symposium steering committee included Gudmundur Bodvarsson (LBNL), John Bredehoeft (The Hydrodynamics Group, Inc., Calif.), R. Allan Freeze (R. Allan Freeze Engineering, Inc., Vancouver, B.C.), John E. Gale (St. Johns Memorial University, Newfoundland), Iraj Javandel (LBNL), Marcelo J. Lippmann (LBNL), Jane S.C. Long (University of Nevada, Reno), Frank Morrison (UC Berkeley), Shlomo P. Neuman (University of Arizona, Tucson), Thomas J. Nicholson (NRC, Washington, D.C.), John R. Nimmo (USGS), and Paul A. Witherspoon (LBNL).